A2 Concl.

and computer program product of an embodiment of the present invention for implementing secure ticketing in a communications device. Like reference numbers and designations in these figures refer to like elements.--

On page 6, paragraph No. 0018, please replace the entire paragraph with the following:

A3

--[0018] Fig. 3 is a detailed diagram that illustrates a communications device in accordance with an embodiment of the present invention.--

Between pages 7 and 8, paragraph No. 0023, please replace the entire paragraph with the following:

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--[0023] The mobile equipment **102** is in communication with the security element **103** via the bus **109**. Additionally, the personal trusted device **100** is in communication with third-party devices **140**, **150**, **160** for receiving and transmitting electronic tickets via a connection **111**, which is typically, but not necessarily a wireless connection. Examples of the communication links may comprise e.g., GSM, GPRS, WCDMA, DECT, WLAN, PSTN, ISDN, ADSL and xDSL connections or the DOCSIS return channel in a cable TV environment, or any short range connection like Bluetooth, IrDA. Communication between the mobile equipment **102**, external memory **106** and third-party devices **140**, **150** and **160** is achieved using various protocols executed by the operating system **107** and the central processor **210**. The protocols used for communication between the mobile equipment **102**, the security element **103** and third-party devices **140**, **150**, **160** include, in an embodiment, a request and store ticket protocol, a use ticket protocol and a check ticket protocol.--

On page 8, paragraph No. 0024, please replace the entire paragraph with the following:

--**[0024]** The personal trusted device **100** in Fig. 1 is connectable to, for example, a wireless network **116** via a transmitted signal such as a frequency-modulated signal from the personal trusted device **100** and received by a base station antenna **114**. It will be understood that the mobile equipment **102** may be provided also with the short range connectivity in addition to the mobile communication activity. From the wireless network **116**, the personal trusted device can be connected to various third-party devices **140, 150, 160** via a network **130** and a wireless network switch **120**. The network **130** can be a server, Intranet, Internet, public switching network (PSTN), public exchange (PBX) or the like. The user (not shown) of the device can communicate with the personal trusted device **100** using the display **212** and keypad **104** via the bus **109**.--

A5

On page 10, paragraph No. 0028, please replace the entire paragraph with the following:

--**[0028]** Every ticket has a signature, which can be verified using the public key of the issuer of the ticket. Because all tickets in the example have been issued by different issuing devices they have different signatures and the signatures can be verified using the public key of the issuing device. When the ticket is presented to a collecting device, the collecting device checks the validity of the ticket by verifying the signature in the ticket. The first ticket is associated with the counter ID "12345" and it is issued by "Grey Hound Co." for ten (10) uses. Correspondingly, the ticket associated with the counter ID "12347" is issued by the cinema company "stardust" for three (3) uses. The additional information can specify the rights as in the example for the ticket issued by the "State Filharmonic" to a certain date and

A6

to a certain seat. If the "counter value" stored in the security element is compared with the value "N" in the ticket, it can be seen that the user having a ticket with a counter ID "12345" has used "Greyhound Co." services five (5) times and can still use the services of "Greyhound Co." for another five (5) times.--

A6 cont.

On page 11, paragraph No. 0029, please replace the entire paragraph with the following:

--**[0029]** Figure 2 illustrates in more detail the cryptography for implementing secured ticketing by mobile equipment **102**, the security element **103**, and third-party devices **140**, **150**, **160** in accordance with an embodiment of the invention. The mobile equipment **102** stores ticket data **101A** in the internal storage device **101** of the personal trusted device **100**. The ticket data **101A** corresponds to the valid tickets received from the issuing device **140** and not yet redeemed by the user. More importantly, the security element **103** is trusted by the third parties involved. The security element **103** uses the public key **103C** and a corresponding private key **103D** only to implement a trusted counter application. Additionally, the mobile equipment **102** may also request a manufacturer certificate **103B** to ensure that the external security device **103** is issued by a trusted manufacturer.--

A7

Between pages 11 and 12, paragraph No. 0031, please replace the entire paragraph with the following:

--**[0031]** The third-party devices contemplated by the invention include issuing devices **140**, collecting devices **150**, and checking devices **160**. The issuing device is used to send electronic tickets to the user of the personal trusted device **100** after the payment of

A8

third-party services. Additionally, the collecting device **150** is used to redeem electronic tickets and the checking device **160** is used to check if the user is in possession of a correctly redeemed ticket. Each of the third-party devices includes public and private keys **140A, 140B, 150A, 150B, 160A, 160B**. It is presumed that the personal trusted device **100** is trusted by the user but is not trusted by the third-party devices. Thus, each of third-party devices can use public and private keys **140A, 140B, 150A, 150B, 160A, 160B** to encrypt critical data for secure communication of electronic tickets with the personal trusted device **100**. The keys **140A, 140B, 150A, 150B, 160A, 160B** in the third-party devices can be encryption keys, signature keys or master keys. A master key is a common symmetric key shared by all issuing, collecting and checking devices 140, 150, 160.--

Between pages 12 and 13, paragraph No. 0034, please replace the entire paragraph with the following:

--**[0034]** Fig. 4 illustrates the steps involved for executing the request and store ticket protocol that is used for receiving and storing electronic tickets in the personal trusted device **100**. Initially, in step **S1** mobile equipment **102** requests the card certificate **103B** stored in the security element **103**. In anther embodiment of the invention the card certificate itself is not stored in the security element **103**, but a pointer to the card certificate in the form of an URL address is stored in the security element **103**, wherein in step **S1** the mobile equipment **102** requests the card certificate from the URL. As mentioned previously, the certificate ensures that the security element **103** is issued by a trusted manufacturer. In step **S2** the security element **103** sends a card certificate **103B**, which is verified by the mobile equipment **102** as a compliant card using a certificate chain. Two certificates can be used in

order for mobile equipment **102** to verify that the security element **103** possesses a compliant card certificate **103B**. For example, a certificate issued by the mobile equipment **102** to the manufacturer of the security element **103**, and a compliant card certificate issued by the manufacturer of the security element **103** to the security device **103** itself. In step **S2**, the security element **103** also sends a public key **103C** or the card certificate **103B**. In step **S3**, the mobile equipment **102** issues a create counter request to create a new counter to correspond to the electronic ticket that is to be received and later redeemed and/or checked by third party devices **140**, **150**, **160**. In step **S4**, the security element **103** sends a counter ID that is used to uniquely identify a counter. In step S5, the mobile equipment **102** forwards the counter ID, and the public key and manufacturer certificate of the external security element **103** to the issuing device **140**. In step **S6**, the issuing device **140** creates a ticket. The ticket is a signature on authenticator data for the issuing device consisting of the counter ID **103A**, the public key **103C** and a number of uses N (not shown) of the ticket created. The number of uses is, for example, the number of uses allowed by the user for this ticket (e.g., 10-use ticket will have N=10). In addition, the authenticator data may include other relevant information, such as e.g., a seat number and/or a date and/or time related to the ticket, to be used by the personal trusted device **100**. By way of example, the ticket issued using the issue ticket protocol resembles ticket = Sig_Issuer(counterID/Public Key_Device 103/N/other_info). In step **S6**, the ticket is sent to the mobile equipment **102** and stored in the internal storage device **101**.--

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On page 14, paragraph No. 0035, please replace the entire paragraph with the following:

--[0035] If the issuing device **140** wants to further determine the authenticity of the security element **103**, and the ticket data **101A,** the issuing device **140** can issue a challenge to the mobile equipment **102** prior to creating the ticket. In this case, the mobile equipment **102** responds to the challenge by invoking a read counter request and returns a signature on authenticator data for the security element **103** that includes the current counter value. If the signature and data are verified as correct, then the issuing device **140** will create and issue a valid ticket.--

A10

Between ~~pages~~ 15 and 16, paragraph No. 0040, please replace the ~~entire paragraph~~ with the following:

--[0040] The ticket issued by an issuing device **140** can also include a multi-use ticket. In the case of a multi-used ticket, the mobile equipment **102** may send both the original ticket as well as the set of validated tickets obtained from the collecting device **150**. The collecting device **150** would then use the additional information (i.e., validated tickets) to make decisions with regard to access control. Additionally, a collecting device **150** may also replace an old ticket or issue a new ticket. To this end, a collecting device **150** also acts as an issuing device **140**.--

A11

On page 16, paragraph No. 0041, please replace the entire paragraph with the following:

--[0041] Fig. 6 illustrates the check ticket protocol in accordance with an embodiment of the invention. In step **S15**, the mobile equipment **102** sends a ticket to the checking device **160**. In step **S16**, the checking device **160** sends a challenge to the mobile

A12

equipment **102**. In step **S17**, the mobile equipment **102** invokes a read counter for the corresponding counter ID by sending a read counter request to the security element **103** using the challenge of the checking device **160** as an input parameter. In step **S18**, the security element **103** sends an authorization token that contains the current value of the counter to the mobile equipment **102**. By way of example, the authorization token sent using the check ticket protocol is AuthToken = Sig_Device 103 (Read_Response/CounterID/Challenge/current_value). In step **S19**, the mobile equipment **102** forwards the authorization token from the security element **103** to the checking device **160**. The checking device **160** checks the current value of the counter using the public key **103C**. In step **S20**, the checking device **160** sends an acknowledgment to the mobile equipment **102** indicating the status of the check. The status of the check by the checking device **160** is either success or failure.--

A12 cont.

On page 18, paragraph No. 0047, please replace the entire paragraph with the following:

--**[0047]** Additionally, as an alternative to computing an authorization token, a MAC can be used as an authentication method. For example, the MAC can be a code function such as HMAC-MD5 with the public key **103C** as the key of the MAC function. By way of example, the issue ticket protocol would change as follows if a MAC function is used as an authentication method. In response to a ticket request, the issuing device **140** creates a ticket and also computes an encypted key (EncKey) by encrypting the counter ID and MAC key (MACKey) using the public encryption key **103C** for the security element **103**. By way of example, the ticket issued using the issue protocol and the MAC is Ticket = Sig_Issuer

A13